REPORT OF ACTIVITY BY THE
VIRGINIA WETLANDS RESTORATION TRUST FUND

March 6, 2003

1. INTRODUCTION

This report presents accruals, impacts, and projects related to the Virginia Wetlands Restoration Trust Fund (Fund), a partnership between The Nature Conservancy of Virginia (TNC) and the Norfolk District Corps of Engineers. The Fund is one of several compensatory mitigation options for permitted impacts to wetlands and other waters, available only after avoidance and minimization**,** into which applicants pay money in lieu of other forms of mitigation. The Corps seeks a no net loss of aquatic resource acreage and functions using a watershed approach. The purpose of this report is intended to address the items referenced in the Virginia Water Protection (VWP) Regulations at 9 VAC (25-210-115E), and in the December 19, 2001, letter from the Department of Environmental Quality (DEQ) Director, regarding approval of use of the Trust Fund as a means of compensation for impacts under VWP permits, specifically:

(1) an accounting that details "contributions received" and
(2) the "acreage and type of wetlands or streams preserved, created, or restored in each watershed with those contributions, as well as
(3) the mitigation credits contributed for each watershed of project impact".

This report updates last year's report and provides historic information from 1995 through 2002. Impacts and compensation are addressed both on a statewide basis and by River basin as depicted in the Virginia Department of Environmental Quality (DEQ) 303(d) list. An analysis of impacts and compensation by 8 digit USGS Hydrologic Unit Codes (HUC) is also included.

Since the Fund's inception in August of 1995, **281** projects have used the Fund as mitigation for permitted impacts. We estimate that Corps and DEQ project managers often spend ~30 work hours per mitigation project reviewing and visiting proposed mitigation plans and sites. Using this figure, the **281** mitigation projects have saved **211.5** weeks or **4.05** years of staff time for the Corps alone. DEQ has also benefited from use of the Fund in savings of staff time. This frees both our staffs to provide better delineations, quicker permit decisions, and to work more enforcement and compliance.

2. CONTRIBUTIONS RECEIVED

The 281 permitted projects resulted in **120.08** acres of impacts over the Fund's **8** years of operation. For these impacts, the Fund accrued contributions totaling **$7.97** million. The impacts, contributions, and number of permits using the Fund each year are shown in Table 1 below:

TABLE 1: IMPACTS, CONTRIBUTIONS, PERMITS AND IMPACTS BY YEAR

YEAR	ACRES OF IMPACTS	CONTRIBUTIONS	PERMITS	AVERAGE IMPACT PER PERMIT (acres)
1995	2.9	$65,000	2	1.45
1996	20.59	$473,225	16	1.29
1997	26.08	$1,295,678	21	1.24
1998	16.25	$780,863	23	0.71
1999	13.72	$994,441	33	0.42
2000	7.09	$805,629	31	0.23
2001	11.57	$1,400,000	59	0.20
2002	21.88	$2,150,000	96	0.23
TOTALS>	**120.08**	**$7,964,836.00**	**281**	

These numbers show a decreasing trend in acres of impacts mitigated via the Fund from 1997 to 2000 and increases during the 1995-1997 and 2001-2002 timeframes. The number of permits that used the Fund to fulfill compensatory mitigation requirements remained relatively constant from 1997 to 2000. In 2001-2002 the acres of impacts increased, however there was also a significant increase in permits issued that used the Fund as mitigation. The average acres of impact per permit have declined over the life of the Fund and in more recent years have remained relatively low and constant. We believe the 2002 increase in impacts resulted from a number of changes. Although General permits (including Nationwide permits) provide applicants with a streamlined permit process for projects with minimal environmental impact, the threshold for required mitigation in the post 2000 General Permits is lower than it was in previous years. Therefore, a greater number of General Permits that historically did not require compensatory mitigation now receive it. With the recent expansion of the VWP program, more permits are being issued that involve mitigation, including mitigation through the Trust Fund. Finally, due to the successes of the Fund, there is greater acceptance of the Fund by project managers and applicants as a mitigation option. As long as greater mitigation values are provided by the Fund, this trend is not problematic.

The dollars received per acre of impacts have on average risen slightly in recent years. While this serves to encourage applicants to avoid and minimize wetland impacts, most applicants find the Fund to be less expensive than accomplishing mitigation on their own, as evidenced by their willing participation in the program. The rise in mitigation bank prices also contributes to this trend, since the Corps requires contributions to the Fund to be slightly higher than what commercial mitigation bank credits cost.

In addition to revenues from contributions for wetland impacts, the Fund earns interest on its balance. Through the end of 2002, the Fund earned ~$689,000 in interest. It is important to note that most of the preservation acres acquired by the Fund have been purchased at a cost that is less than the value of interest earned on the Fund balance.

3. IMPACTS AND MITIGATION BY WATERSHED

Below is Table 2, which shows impacts to wetlands and waters by river basin (as shown on DEQ's 303d list), contributions received from impacts, and 5 categories of mitigation. Using 5 acres of permitted impacts mitigated via the Fund, within a basin as indicative of a threshold of significance, the Fund can prioritize the search for compensation sites within basins. The Chowan, Lower James, Middle James, York, and Chesapeake Bay basins hold the highest priorities for the Fund's mitigation efforts. However, this does not mean that the other basins are being neglected or that projects in basins without significant impacts will be declined. The first goal is to address "no net loss" in each basin with significant impacts, indicated by a minimum 1:1 restoration ratio for the impacts. The Fund's next goal is to accomplish at least a 2:1 restoration ratio in addition to wetland and buffer preservation acres in each basin. The "no net loss" plus preservation goal is being met in the Chowan, Lower James, Middle James, and Chesapeake Bay basins. The York basin exceeded the 5-acre impact threshold in 2002 and is therefore a higher priority for a mitigation project. The Rappahannock is nearing the 5-acre threshold so it is also subject to higher priority for project acquisition. The Roanoke and Upper James basins are accumulating impacts that will need attention soon. Currently, multiple mitigation projects in the Rappahannock, York, Chowan, Lower James, and Roanoke basins are being evaluated and negotiated as priorities for acquisition. As stated above, a major focus is to address basins with significant impacts, however the Fund is receptive to any project in any basin that provides good mitigation value. To address the high number of impacts in the Lower James basin, TNC acquired the Stephens tract with 70 potential restoration acres and 110 preservation acres in 2002.

The figures provided in Tables 2,3, and 4 include a mosaic of mitigation projects in various stages of completion. Some of the numbers provided, especially for recent acquisitions (generally proceeded by "~") are estimates and cannot be relied upon as exact or final. In Table 2, the heading "Wetland Restoration Acq&Rest" refers to all wetland restoration acres acquired AND restored, regardless of the stage of restoration. In Table 3, the heading "wetland restoration acquired" refers to acres that have been purchased, investigated, have hydric soils, and are scheduled for restoration activities. The heading "wetland restoration completed" refers to acres where restoration efforts including earthwork, planting, and the initial phases of monitoring have been accomplished. While many of the early monitoring results tend to support the estimated figures, as those monitoring results are finalized, this number may change to some extent.

TABLE 2. 1995-2002 WETLAND IMPACT ACREAGE AND MITIGATION BY RIVER BASIN

BASIN	Acres of Impacts	$ Amount Accrued	$ Amount Allocated to Projects	Wetland Restoration Acq&Rest	Wetland Preservation	Wetland Enhanced	Upland Buffer Preserved	Upland Buffer Restoration
Chowan	25.75	804,461	2,171,721	186	1110	220	21	20
Lower James	60.99	3,747,068	1,088,355	106	322	10	27	13
Mid James	8.15	593,911	366,450	15	0	0	0	125
Upper James	1.21	40,409	0	0	0	0	0	0
York	5.33	779,395	40,000	0	15	0	0	0
Ches Bay	9.88	887,601	147,036	15	34	190	34	15
New	0.06	2,594	0	0	0	0	0	0
Shenandoah	0.26	18,779	0	0	0	0	0	0
Tennessee	0.66	36,317	7,000	0	0	0	0	0
Rappahannock	3.11	364,163	111,594	0	0	80	5	0
Roanoke	2.40	223,287	0	0	0	0	0	0
Potomac	2.28	466,569	175,000	~40	~50	0	~50	0
TOTALS	**120.08**	**7,964,554**	**4,107,156**	**362**	**1531**	**500**	**137**	**173**

Primarily, the impacts and mitigation acres addressed by the Fund have involved palustrine forested wetlands. Some tidal wetland and open water impacts have paid into the Fund primarily in the Lower James basin. In 2002, the Fund paid for the construction of an oyster reef in the Elizabeth River and currently is reviewing 2-3 tidal mitigation sites in the Lower James Basin for restoration suitability. The Corps and TNC continuously review additional sites for restoration projects.

The Fund has 24 wetland and stream mitigation sites in its project portfolio in different watersheds. Five of these projects involve solely preservation and 19 involve some level of restoration or enhancement of wetlands, streams, or both. Of these 19 restoration projects, 12 have been completed and have ongoing monitoring. Completing the restoration on the remaining projects is a priority for the Fund. TNC's Wetland Restoration Specialist position that to Trust Fund projects with emphasis on restoration plan development, implementation, and monitoring. This position provides major cost savings over subcontracting all tasks to private consultants that can be applied to additional mitigation projects.

The Fund tracks its impacts, revenues, mitigation, and disbursements by HUC. However, the Fund maintains flexibility to allocate dollars where the best mitigation projects present themselves in order to obtain the best mitigation value with these limited dollars. That being said, the Fund managers ensure that when mitigation projects are approved outside of the HUCs where dollars were generated, sufficient funds remain to mitigate for the impacts from all HUCs where funds were generated. The Fund does not allocate dollars to projects (out of impact HUCs) in amounts that will threaten the ability to mitigate for impacts in HUCs where those impacts occurred.

4. HYDROLOGIC UNIT CODES (HUCs)

The Corps and TNC currently track impacts and projects by HUC and evaluate projects based upon the "HUC plus adjacent HUC" within same river basin method with one exception. If a mitigation site is outside the mapped HUC line, but due to hydrologic modifications is a tributary of the HUC in question, the Fund, after concurrence with DEQ, will accomplish projects outside a HUC line to mitigate for impacts inside a HUC line. For the Fund, this approach is consistent with State law. Such is the case with the Stephens tract in Chesapeake, Virginia. Although it is 0.2 miles south of the 02080206 HUC line, it drains to the Dismal Swamp Canal, one of the largest tributaries to the Elizabeth River (HUC 02080206). Also and where appropriate, the Fund strives to accomplish projects on different sub-watersheds within a specific HUC. Different projects in the Northwest River, Great Dismal Swamp, and Back Bay watersheds, all within HUC 03010205, demonstrate this concept.

It is important to note that the Fund always seeks the highest and best mitigation value and will not forego good mitigation projects when and where they become available, unless doing so would threaten the Fund's financial ability to mitigate for impacts realized within a particular HUC or basin. Managing and tracking basin impacts and mitigation by acres, and not by dollars, provides the flexibility to acquire good projects, even in areas without

significant impacts, without risk to the mitigation needs in basins with significant impacts. Accomplishing some projects in basins that lack significant impacts allows for mitigation in advance of impacts, just as with mitigation banks. Tables 3 lists specific wetland mitigation projects by HUC.

TABLE 3: 1995-2002 SPECIFIC WETLAND MITIGATION PROJECTS (acres)

WETLAND PROJECTS	wetland restoration acquired	wetland restoration completed	wetland preservation	wetland enhancement	upland buffer preserved	upland buffer restoration	hydrologic unit code
Kellam Rigato	0	0	**160**	0	0	0	3010205
TidewaterChristian	0	0	**51**	0	0	0	3010205
Mayo Tract	0	0	**10**	0	**3**	0	3010205
Benefits Tract	0	**8**	**704**	**~40**	**18**	0	3010205
Hall Tract	0	**25**	0	0	0	**6**	3010205
Su Tract	0	**56**	**73**	**~30**	0	**4**	3010205
Bruff Tract	0	**4**	0	0	0	**6**	3010205
Knight Tract	0	**17**	0	0	0	**1**	3010205
Fentress Tract	**20**	0	0	0	0	**3**	3010205
Stephens Tract	**70**	0	**112**	0	0	0	3010205
	0	0	0	0	0	0	
Stephens Tract	**70**	0	**112**	0	0	0	2080208
Oyster Reef 0.3 ac	0	0	0	0	0	0	2080208
Walters Tract	0	**22**	**210**	10	**27**	**13**	2080206
Lamb Tract	**15**	0	0	0	0	**125**	2080204
	0	0	0	0	0	0	
Dameron Marsh	0	**15**	**18**	0	**18**	**15**	2080102
Trimmer Tract	0	0	**16**	0	**16**	0	2080102
	0	0	0	**0**	0	0	
Eastern Va Phrag	0	0	0	**380**	0	0	2080108
Rappahan/Phrag	0	0	0	**80**	0	0	2080104
Po River	0	0	**15**	0	**5**	0	2080105
	0	0	0	0	0	0	
Nash/Chotank	**~40**	0	**~50**	0	**~50**	0	2070011
Total Acres>	**215**	**147**	**1531**	**500**	**137**	**173**	

5. STREAMS

In 2001 and 2002, the Fund entered into mitigation for stream impacts, with approximately **2500** linear feet of stream impacts. To date, the Fund has completed 105 linear feet of stream restoration, 2000 linear feet of stream buffer restoration, acquired 2 sites with a total of **~4000** linear feet of streams to be restored and 6000 linear feet of river buffer restoration, and funded a fish passage project that will enhance 3.74 miles of streams by opening them to anadromous fish. Table 4 shows specific stream mitigation projects by HUC.

TABLE 4: 1995-2002 SPECIFIC STREAM MITIGATION PROJECTS

Stream Projects	Lf Stream Restored	LF Stream Restoration Acquired	Lf Stream Preserved	Lf Stream Enhanced	Lf Buffer Restored	Lf Buffer Preserved	Buffer Acres Restored	Buffer Acres Preserved	HUC
Grays Island	0	0	0	0	**3000**	**8600**	**3**	**10**	6010205
Cheswick Park	**105**	0	0	0	0	0	0	0	2080206
Lamb Tract	0	**~3000**	0	0	0	0	0	0	2080204

Nash Tract	0	**~2000**	**~1000**	0	0	0	0	0	2070011
Linden Farm	0	0	0	0	**2000**	0	**3.4**	**30.92**	2080103
Rapp Fish Passes	0	0	0	**19747.2**	0	0	0	0	2080104
TOTALS	**105**	**5000**	**1000**	**19747.2**	**5000**	**8600**	**6.4**	**40.92**	

6. MONITORING

Monitoring mitigation projects is important to overall mitigation success. Accordingly, the Corps, in consultation with TNC's staff and Monitoring Specialist, developed a monitoring protocol in 2001 that is applied to all wetland restoration projects. The protocol outlines the process for developing monitoring plans on a site-specific basis. Since stream mitigation projects are new to the Fund, a stream project monitoring protocol will be developed in the future. Below is a brief overview of the protocol.

A. HYDROLOGY:

Several hydrological monitoring tools may be used during monitoring including shallow groundwater hydrology wells, peizometers and staff gauges, depending upon which aspect of hydrology is to be assessed. Typically, the use of shallow groundwater hydrology wells is used because it directly addresses hydrological criteria set forth by applicable US Army Corps of Engineers and Department of Environmental Quality regulations and guidance. Trust Fund wetland restoration projects are generally monitored for shallow groundwater hydrology using Remote Data Systems or other automatic reading wells that can record depth to water table data on a daily basis. This is to provide the highest quality data and to eliminate the subjectivity present in manually read wells, where the recommended interval between readings is weekly during the growing season and monthly during the non-growing season. Automatic reading wells also provide robust data sets that aid in analyzing and comparing daily precipitation data for normal circumstances determinations. Lastly, these data may provide a basis from which the study of wetland hydrology can be advanced. Well locations are approved by the US Army Corps of Engineers prior to installation. While the number of groundwater hydrology wells deployed depends upon the complexity of each site, generally at least one well is installed per five acres (1:5), or less, of restoration area, as site conditions dictate. Hydrology monitoring is generally conducted for 5 years, with limited well stations left in place for extended durations of time to provide long term monitoring information to better understand the evolution of Trust Fund restoration sites.

B. VEGETATION:

The Trust Fund implements a number of different vegetative restoration strategies including bare-root seedling installation, weed mats, tree shelters, invasive species control, installation of aggressive canopy closers (e.g. black willow), and no-plant alternatives. These different re-vegetation strategies require differing sampling methods and frequencies. The Trust Fund employs standard, accepted sampling methodologies for assessing vegetation at all restoration sites. These include quantitative methods (e.g. plot/transect methods) and qualitative (e.g. professional observations) depending upon the objective. For sites that were planted where a primary objective is attaining a forested structure, survivability of planted trees along transects or within plots is used to estimate densities. In addition an assessment of volunteer woody species may be conducted to determine if colonization by on-site sources is occurring and, in certain cases, to what extent. Where appropriate, early successional herbaceous monitoring is conducted. Typical methods include quadrat sampling (e.g. aerial cover to determine dominants). Perhaps monitoring of these different strategies may help to determine the most favorable strategy for palustrine forested wetland restoration in the future.

C. SOILS:

Soils are primarily mapped as hydric versus non-hydric in the early stages of project development. If non-hydric areas are significantly hydrated as a result of restoration activities, those soils are monitored to determine if they become reduced. Generally the guidelines approved by “Field Indicators of Hydric Soils in the Mid-Atlantic United States”, “US Army Corps of Engineers 1987 Wetland Delineation Manual” or other acceptable source for identification of hydric soils indicators is used.

D. GENERAL STEWARDSHIP:

All restoration sites are either under the long-term stewardship of the Conservancy or some other qualified natural resource entity (e.g. DCR, USFWS) either through ownership or through conservation easement. Stewardship is an important aspect of any restoration project and The Nature Conservancy is uniquely qualified to address the challenges of successful long-term management. Such challenges include access, invasive species control, local landowner education and vandalism. Frequent site visits by wetland professionals and the use of volunteers to aid in certain aspects of monitoring provide a heightened awareness of the progression of Trust Fund sites.

Although the Fund does not pay for academic research studies, its sites are made available for masters and doctorial degree research studies as long as they do not hamper mitigation efforts. Two such studies are have been conducted at Trust Fund sites in Chesapeake, including one review of soil temperature and growing season supervised by Dr. Gallbraith of Virginia Tech, and one small mammal study supervised by Dr. Rose of Old Dominion University.

7. CONCLUSION AND PARTNERS

The above projects demonstrate that the Fund is accomplishing its goal of providing watershed-based mitigation for permitted impacts along with enhancing the preservation and restoration of Virginia's Aquatic Resources. By combining the mitigation assets from multiple permit applicants, the experience and land acquisition abilities of TNC, mitigation expertise of the Corps, and by enlisting partners such as Friends of the Rappahannock, The Central Virginia Battlefields Trust, Virginia Commonwealth University, Henrico County, James City County, the Virginia Marine Resources Commission, Virginia Department of Game and Inland Fisheries, Virginia Division of Natural Heritage, the Chesapeake Bay Foundation, the Fund is in a favorable position to bring significant mitigation projects to completion.

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